

MASSACHUSETTS

FATAL INJURIES AT WORK

2000 UPDATE

Occupational Health Surveillance Program ○ Massachusetts Department of Public Health ○ September 2002

Every year, men and women in a wide variety of jobs and industries throughout Massachusetts die as a result of injuries suffered at work. These deaths are all the more tragic because they are largely preventable. Information about when and how they occur is essential in order to target effective prevention programs. In Massachusetts, the Occupational Health Surveillance Program (OHSP) in the Massachusetts Department of Public Health (MDPH) collects information on fatal occupational injuries as part of the national Census of Fatal Occupational Injuries (CFOI), conducted in cooperation with the Bureau of Labor Statistics (BLS), U.S. Department of Labor.

OHSP also conducts in-depth work site investigations of targeted fatal occupational injuries as part of the national Fatality Assessment Control and Evaluation project (FACE), sponsored by the National Institute for Occupational Safety and Health (NIOSH). The purpose of the FACE project is to develop a detailed understanding of how fatal injuries occur and to identify effective countermeasures to prevent similar incidents in the future. Excerpts from selected FACE investigations are highlighted in this report.

This update provides an overview of fatal injuries at work that occurred in Massachusetts during 2000. These include fatalities traditionally linked with factors in the work environment such as falls, electrocutions, and exposure to toxic substances. They also include homicides and suicides at work, as well as motor vehicle-related fatalities that occurred during travel on the job. Deaths caused by occupational illnesses and most fatal heart attacks at work are not included in this fatality census.

OVERVIEW OF FATAL INJURIES AT WORK IN 2000

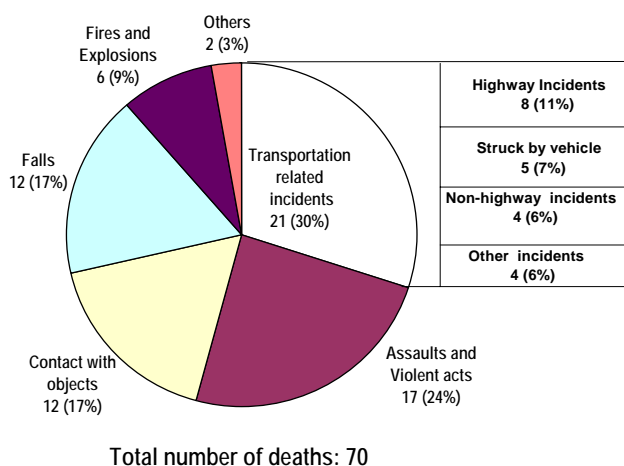
- In 2000, 60 men and 10 women in Massachusetts suffered fatal injuries at work. The overall rate of fatal occupational injury was 2.2 per 100,000 workers. The rate for men was 3.6 deaths per 100,000 workers, more than five times higher than the rate for women (0.7 deaths per 100,000 workers).
- The average age at death was 42.4 years. Thirty-nine (56%) victims were younger than 45 years of age and 5 victims were older than 65 years. The 70 fatalities resulted in an average of 32.6 years of potential life lost for each death (years before the victim reached age 75), for a total of 2,282 years of potential life lost.
- Two victims were younger than 18 years. One of them was killed when the golf cart he was operating crashed into a deck, and the second young worker was killed when the forklift he was operating overturned.
- Sixty-one (87%) victims were White, 3 were Black, and 2 were of other races.
- Four victims were Hispanic.¹
- Of the 70 workers fatally injured, 57 (81%) were wage and salary workers and 13 were self-employed.

¹ Victims of Hispanic origin are counted only as "Hispanic" and are excluded from counts in any of the race categories.

EVENTS RESULTING IN FATAL INJURIES

- Twenty-one (30%) Massachusetts workers died in transportation-related incidents distributed among different categories (Figure 1). Eight workers were vehicle occupants who were killed due to motor vehicle crashes, overturns and collisions on highways and other roads. Four victims were vehicle occupants that were killed when the vehicles they were operating overturned in construction sites. Five workers were struck by vehicles in construction sites, roadways or parking lots. These included two police officers who were fatally struck by vehicles while directing traffic.
- Assaults and violent acts accounted for 17 (24%) of the work-related deaths, the highest number since 1991. Eleven were homicides and 6 were suicides. Nine of the 11 homicides involved the use of firearms, and 7 of these victims were killed in a single incident.

Figure 1. Fatal Injuries at Work by Event/Exposure²
Massachusetts, 2000



- Contact with objects or equipment claimed the lives of 12 workers. Five of them were struck by falling objects. Three workers were killed when they were run over by unoccupied vehicles that moved.
- Falls accounted for 12 deaths. Of these, 11 were due to falls to lower levels. Falls to lower levels remained one of the most common fatal events for the sixth consecutive year. Nearly two-thirds (7 deaths) of these fatal falls occurred in the construction industry. Three of the 8 fatal falls for which height information was available occurred from heights less than 20 feet.
- Six workers died from fires and explosions, and 5 of them died in a single fire.

A municipal police officer was fatally injured when a motorist intruded into a roadway construction work zone. The victim had been standing inside the work zone at a four-way intersection directing traffic through a detour. The motorist who failed to turn right at the detour, skidded sideways through traffic barrels and signs, striking the victim. The victim had been employed by the municipality for approximately three years. In Massachusetts, municipal police officers do not receive specific roadway construction work zone safety training.

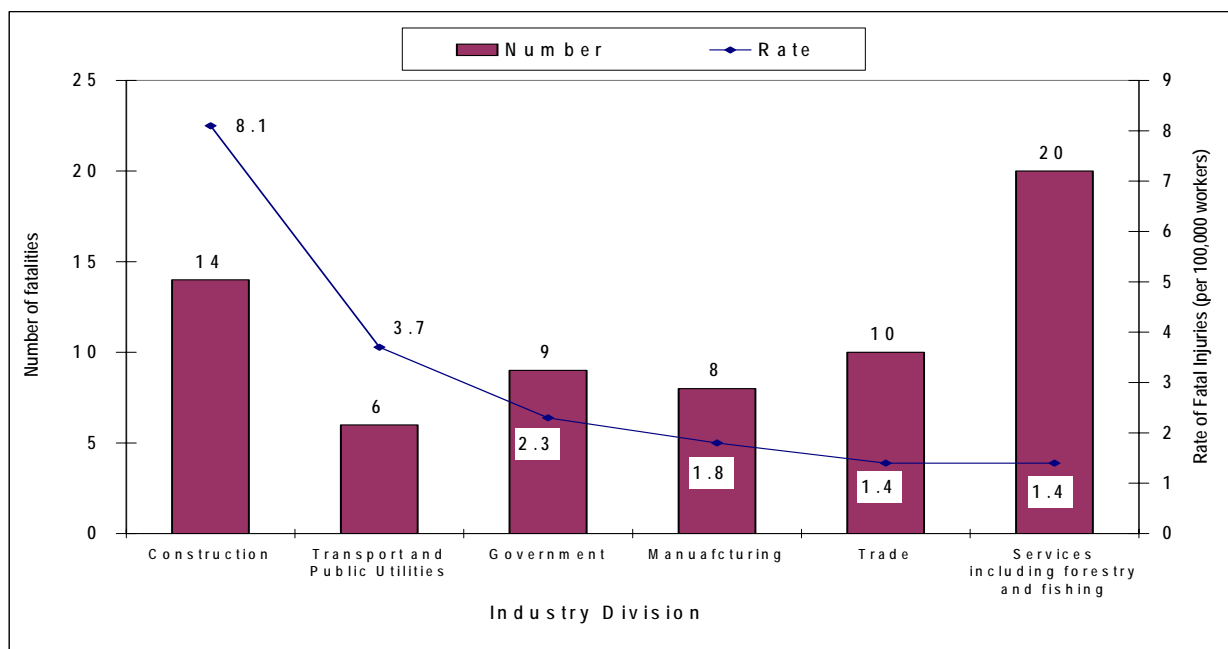
In order to prevent similar incidents, Massachusetts FACE recommended that employers should: 1) ensure that work zones are setup, at a minimum, in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Part 6 developed by the U.S. Department of Transportation Federal Highway Administration; 2) consider portable rumble strips to alert motorists to the changed roadway conditions; 3) consider area objects and the work site background when choosing colors for worker apparel; 4) local and state government agencies should consider work zone safety training for all municipal officers who perform traffic details on roadway construction sites; and 5) state government agencies should consider developing state laws that impose increased fines for motorists speeding within roadway work zones (Massachusetts FACE Report, 00MA054).

² Occupational Injury and Illness Classification Manual, U.S. Department of Labor, Bureau of Labor Statistics, 1992.

FINDINGS BY INDUSTRY

- The Services industry division (including Forestry and Fishing) had the highest number of fatal injuries at work (19 deaths) and the lowest rate of fatal injury (Figure 2). More workers died in this industry division in 2000 than in any of the previous 9 years. Homicide was the leading single event in this industry division (7 fatalities). All 7 homicides were the result of a single incident in the computer programming, data processing, and other computer-related services industry. Fire was the second leading event with 5 fatalities, all the result of a single fire.

Figure 2. Number and Rate³ of Fatal Injuries at Work by Industry Division^{4,5}, Massachusetts, 2000



NOTE: Government includes all fatalities to workers employed by government organizations regardless of industry.
Data for the agriculture Industry division are not presented due to few fatal injuries (less than three)

- Construction had 14 (20%) occupational fatalities and the highest fatal injury rate (8.1 deaths per 100,000 workers), nearly four times higher than the overall rate for all industry divisions. Eight of the 14 fatal injuries occurred on residential construction sites. Falls to lower levels was the leading event in the industry division, accounting for 7 of the 14 deaths. Eight (57%) of the 14 victims were employed in establishments with 10 or fewer employees.
- Ten fatal occupational injuries occurred in the Trade industry division. Most of the fatal injuries (6 deaths) occurred in retail trade establishments. Three of these were homicides and 3 were motor vehicle incidents. Of the 3 homicides, one occurred in a convenience store and two occurred in eating & drinking places.
- Nine Government workers were killed on-the-job in 2000, and the fatal injury rate for government workers was the third highest (2.3 deaths per 100,000 workers). Three victims were law enforcement officers, 2 of whom were killed when they were struck by vehicles while directing traffic.
- Eight workers in the Manufacturing industry division sustained fatal injuries. Three of these deaths were due to contact with objects.
- Transport and Public Utilities industry division had 6 fatalities, and the second highest fatal injury rate (3.7 deaths per 100,000 workers). Three of the 6 fatalities involved truck drivers who died due to motor vehicle collisions on highways.

FINDINGS BY OCCUPATION

³ To maintain consistency with the denominator data, fatalities among self-employed workers were excluded in calculating rates.

⁴ Standard Industrial Classification Manual, 1987 edition, Office of Management and Budget.

⁵ To maintain consistency with the denominator data, fatalities in Forestry and Fishing industries were included in the Services industry Division.

- The Operators, Fabricators and Laborers occupation group had the highest number of fatalities (23 deaths). These included truck drivers, machine operators, construction laborers, welders, and non-construction laborers. Eight of the 23 victims were employed in the construction industry division, which had the highest rate of fatal injury. Five were employed in the Transport and Utilities industry division that had the second highest fatal injury rate.
- The Managerial and Professional Specialty occupation group had the second highest number of fatal injuries (19 deaths). Thirteen of these 19 victims were employed in the Services Industry division. Homicide, the most common fatal event in the Services industry division, was also the leading fatal event in the Managerial and Professional Specialty occupation group accounting for 7 deaths. A single fire fatally injured 5 workers, while 4 workers committed suicide at work.

OSHA COVERAGE, INVESTIGATIONS AND PENALTIES

Of the 70 fatal injuries at work in 2000, 24 deaths occurred in industries or circumstances that are outside Occupational Safety and Health Administration (OSHA) jurisdiction. These included fatalities among commercial fishers, public sector employees including fire fighters, and self-employed individuals for whom there is no employer/employee relationship. An additional 26 fatalities involved circumstances not routinely addressed by OSHA, such as homicides, suicides, airplane crashes and motor vehicle-related deaths. In total, 50 (71%) of the fatal injuries at work in Massachusetts during 2000 occurred in industries, circumstances or causes that are not addressed by OSHA.

OSHA investigated 20 occupational fatalities that occurred during the year. Fines for violations of OSHA standards related to these fatalities were issued against 19 employers in separate incidents. The agency assessed a total of \$344,392.51 in penalties as a result of its fatality investigations, with the lowest fine assessed at \$3,000 and the highest at \$59,200. Employers are required to report work related fatalities to OSHA within 8 hours of any fatality that occurs within 30 days of an incident. OSHA fined one employer a total of \$2,500 for failure to report a fatality within this required time frame.

COMMENTS

It is important in reporting summary information about fatal occupational injuries to acknowledge the victims that these numbers represent. These deaths were tragic incidents that were in large part preventable. Surveillance findings are intended to guide government, industry and labor and community organizations in developing strategies to prevent similar, tragic deaths in the future.

Nationwide, 5,915 workers died as a result of work-related injuries in 2000, and the national fatal occupational injury rate was 4.3 deaths per 100,000 workers⁶, substantially higher than the rate of 2.2 deaths per 100,000 workers for Massachusetts. The lower fatal occupational injury rate in Massachusetts is, in part, explained by the industrial make-up of the Commonwealth compared to that of the nation. Massachusetts also has lower rates of fatal motor vehicle crashes and homicides in general. Massachusetts' findings highlight the types of fatal occupational events and industries for which prevention efforts are most needed in the Commonwealth.

A 16-year-old part-time cleaning helper was fatally injured when the forklift he was operating at a seafood processing/retail facility overturned, crushing his chest. The victim was using the forklift to move a wooden pallet that had been loaded with trash and raised approximately 4½ feet. He had been employed with the company for approximately 18 days and his training was on-the-job and conducted by other teen employees.

In order to prevent similar incidents, Massachusetts FACE recommended that employers should: 1) comply with federal and state child labor laws which prohibit youth less than 18 years old from operating forklifts; 2) train all forklift operators in safe operating procedures; 3) provide adequate supervision for young workers, new employees and any inexperienced worker; 4) develop, implement and enforce a comprehensive health and safety program; and 5) government and insurance agencies should increase their efforts to inform businesses about child labor laws (Massachusetts FACE Report, 00MA058).

The *Services* industry division had the highest (19 deaths) number of fatal occupational injuries during 2000, more than the number of fatalities in any of the previous 9 years. Workplace homicide accounted for 7 of these 19 deaths and remained

⁶ U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2000. August 2001.

the leading fatal event in the industry since 1991. The major circumstances of workplace homicide include robbery-related violence and violence by co-workers. Workplace violence, therefore, needs to be considered as an occupational safety and health issue, and prevention efforts by employers are required to minimize risks. Prevention strategies and guidelines for specific industries are available on the Occupational Safety and Health Administration (OSHA) web site at <http://www.osha.gov> and on the National Institute for Occupational Safety and Health (NIOSH) web site at <http://www.niosh.gov>.

Transportation-related incidents was the leading event category, accounting for 30% the total fatal injuries that occurred in 2000. These included motor vehicle, air transport, and water transport incidents. While motor vehicle incidents on highways and local roads accounted for the majority of these fatal injuries, a considerable number of workers also were struck and killed by vehicles in non-roadway areas such as construction sites. These included two police officers who were struck and killed by vehicles while performing roadway construction traffic details. Prompted by these incidents, the Massachusetts FACE program is exploring ways to promote roadway construction safety training for municipal police officers.

Fall to lower levels was one of the leading fatal events at work in Massachusetts in 2000 for the sixth consecutive year. Nearly one-fifth (19%) of all fatal injuries that occurred in Massachusetts between 1991 and 1999 were falls to lower levels, and 53% of these occurred in the construction industry division. This industry division also had an average fatal occupational injury rate of 10.9 deaths per 100,000 workers during the same period. OSHA has established and is enforcing the new fall protection standard in construction industry (Subpart M, Fall Protection, 29CFR 126.500-1926.503). The standard identifies areas where fall protection is needed and clarifies what employers must do to provide fall protection for employees (such as identifying and evaluating fall hazards and providing specific training and equipment). In Massachusetts, the FACE Project is continuing educational outreach to residential contractors by disseminating fall prevention brochures. These brochures are available on our web site at www.state.ma.us/dph/ohsp/scaffold.htm.

The Occupational Health Surveillance Program is preparing an in-depth report on fatal occupational injuries in Massachusetts from 1991 to 1999. For copies of this report, more detailed tables of fatal occupational injuries in 2000, and copies of full-length FACE reports in Massachusetts, please contact Massachusetts Department of Public Health, Occupational Health Surveillance Program, 250 Washington Street, 6th Floor, Boston, MA 02108-4616. These reports may also be obtained by calling (617) 624-5632 or e-mailing: Tsegaye.Bekele@state.ma.us.

A 22-year-old immigrant laborer was fatally injured when he was crushed while inside a horizontal paper baler. The victim entered the baler's hopper to manually clear a jammed paper bale because the baler's jam clearing mechanism had not been working. While crouched between the ram and the jammed paper bale, the ram cycled in the forward direction crushing him. He had been employed with the company for four years and his training was primarily on-the-job, which did not include training on the hazards associated with his death.

In order to prevent similar incidents, Massachusetts FACE recommended that employers should: 1) ensure that machines are operating properly to eliminate potential hazards to employees; 2) develop and enforce a hazardous energy control program for all employees including specific lockout/tagout procedures for each machine; 3) develop a training program that includes a protocol on how to clear jams and ensure that all workers are trained in the safe operation and the potential hazards of each machine; and 4) develop, implement, and enforce a comprehensive health and safety program (Massachusetts FACE Report, 00MA035).

ACKNOWLEDGEMENTS

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Please report Work-related fatalities immediately to:

Our toll-free Occupational Fatality Hotline Number:

1-800-338-5223

or

Fax (617)-624-5696

When reporting a fatality, include the following information:

- Reporter's name, address, and phone number
- Victim's name, occupation and employer
- Brief description of the incident, including date and time

The Occupational Health Surveillance Program would like to thank all agencies and people that contributed to our effort of preventing work-related deaths by reporting fatalities and providing information during our fatality investigations.

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